Drinking Water Surveillance Program

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT

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THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT ANNUAL REPORT 1989

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Thunder Bay (Loch Lomond) Water Treatment Plant treats water from Loch Lomond. The water is disinfected and sodium silicate is added for corrosion control. This plant has a design capacity of 54.55 x 1000 m^3/day and together with the Bare Point Supply serves a population of approximately 113,000.

The Thunder Bay (Loch Lomond) raw and treated water and four distribution system sites were sampled for the presence of approximately 180 parameters. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles). Samples were analyzed for Chlorophenols and Specific Pesticides in November only.

A summary of results is shown in Table A.

The Ontario Drinking Water Objective (ODWO) for turbidity of 1 FTU was exceeded in one treated water sample. All other Inorganic and Physical parameters were below any applicable health related ODWOs.

Samples were analyzed monthly for the presence of approximately 110 Organics. Levels did not exceed health related guidelines.

The quality of water at the Loch Lomond Supply was found to be satisfactory and this quality was maintained in the distribution system. A treatment process appropriate to the source of the supply (see ODWOs revised 1983 p7) would assure consistent quality.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP)

SUMMARY TABLE BY SCAN

	SCAN	RAW			TREATED			SITE 1			SITE 3			SITE 2			SITE 4		
		TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
	BACTERIOLOGICAL	5	1	20	7	2	28	.	.	.	4	1	25	.	.	.	8	0	0
	CHEMISTRY (FLD)	27	23	85	51	51	100	7	7	100	10	10	100	15	4	26	36	35	97
	CHEMISTRY (LAB)	220	145	65	220	157	71	35	32	91	36	31	86	89	70	78	175	153	87
	METALS	264	98	37	264	94	35	47	21	44	25	13	52	118	42	35	235	96	40
	CHLOROAROMATICS	154	0	0	154	0	0	14	0	0	28	0	0	42	0	0	70	0	0
	CHLOROPHENOLS	6	0	0	6	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PAH	173	0	0	173	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PESTICIDES & PCB	374	0	0	374	0	0	34	0	0	68	0	0	63	0	0	170	0	0
	PHENOLICS	10	8	80	11	10	90	.	.	.	.	.	.	.	.	.	.	.	.
	SPECIFIC PESTICIDES	38	0	0	38	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	VOLATILES	290	1	0	261	28	10	29	4	13	58	7	12	87	9	10	116	12	10
TOTAL		1561	276		1559	342		167	64		231	62		417	125		815	296	

THE GDWQ OF 1 FTU FOR TURBIDITY WAS EXCEEDED IN ONE TREATED WATER, NO OTHER HEALTH RELATED GUIDELINES WERE EXCEEDED.

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT ANNUAL REPORT 1989

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored. The DWSP was initiated at the Thunder Bay (Loch Lomond) Water Treatment Plant in May 1988 with sampling of the distribution system. Sampling at the treatment plant began in September 1988. An Annual report was published for 1988 (ISSN 0843-834X).

This report contains information and results for 1989.

PLANT DESCRIPTION

The Thunder Bay (Loch Lomond) Water Treatment Plant treats water from Loch Lomond. The water is gravity fed into a valve chamber where it is disinfected. Sodium silicate is added for corrosion control. This plant has a rated capacity of 54.55 x 1000 m^3/day and daily flows ranging from 25.2 x 1000 m^3/day to 35.0 x 1000 m^3/day. This plant together with the Bare Point Treatment Plant serves a

population of 113,000.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

SAMPLE LOCATIONS

Water samples were obtained from six DWSP approved locations;

i) Plant Raw - The water originated from the raw water wet well prior to chlorination and was sampled through a stainless steel sample line. The sample tap is located near the wet well.

ii) Plant Treated - The water originated from the reservoir after the addition of all treatment chemicals and was sampled through a stainless steel sample line. The location of the sample tap is unknown.

iii) Distribution System - Site 1 - The distance of this house from the plant is unavailable as are the type of sample line and location of the sample tap. This site was sampled once in 1989.

iv) Distribution System - Site 2 - The distance of this house from the plant is unavailable as are the type of sample line and location of the sample tap. This site was sampled three times in 1989.

v) Distribution System - Site 3 - The distance of this house from the plant is unavailable as are the type of sample line and location of the sample tap. This site was sampled twice in 1989.

vi) Distribution System - Site 4 - The distance of this house from the plant is unavailable as are the type of sample line and location of the sample tap. This site was sampled five times in 1989.

SAMPLING AND ANALYSES

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At the distribution system location, two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing due to leaching from (or deposition on) the plumbing system. The only analyses carried out on the standing samples, therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing at the

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

THUNDER BAY (LOCH LOMOND) WATER SUPPLY SYSTEM

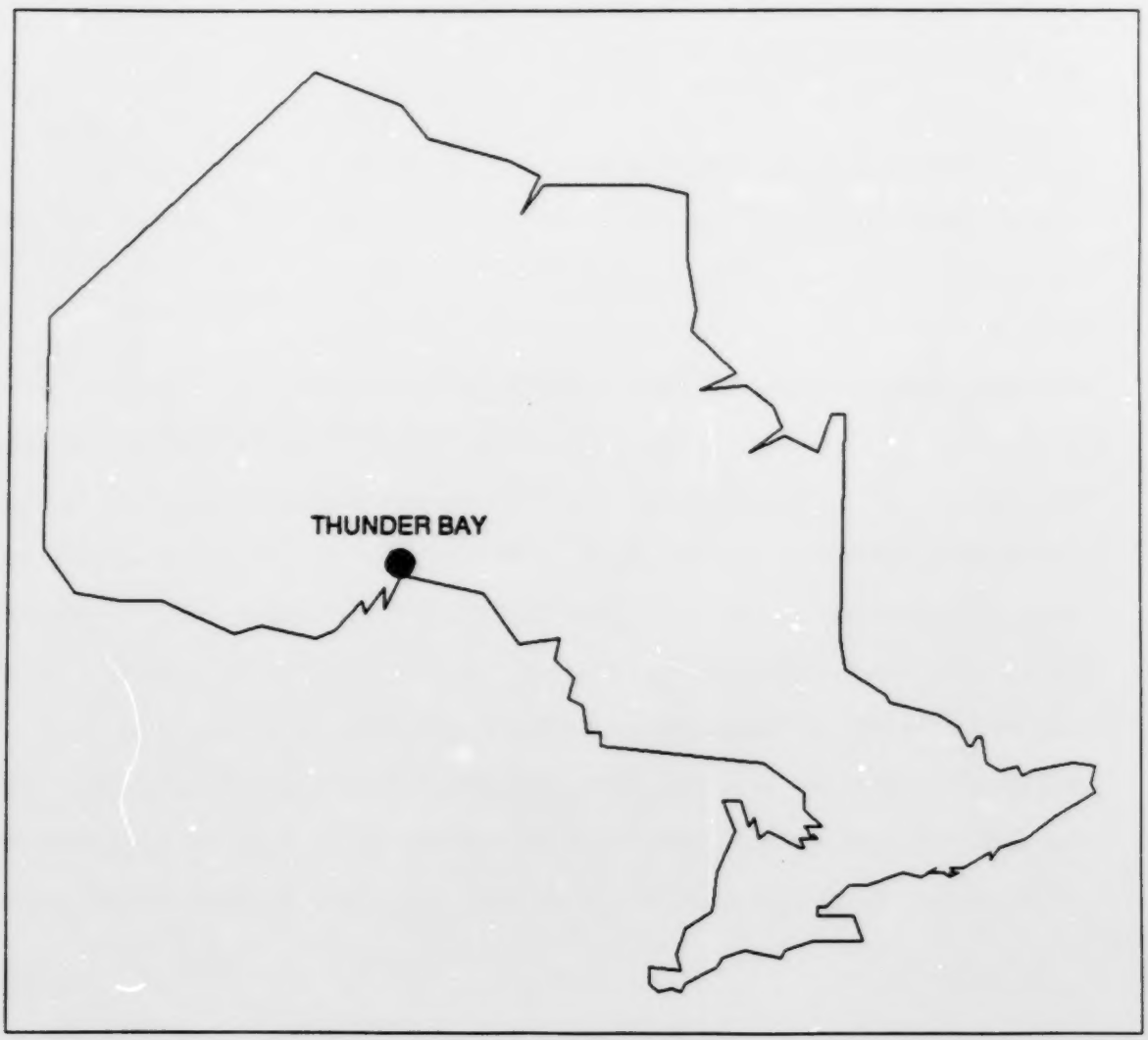

FIGURE 2

THUNDER BAY (LOCH LOMOND) WATER TREATMENT PLANT

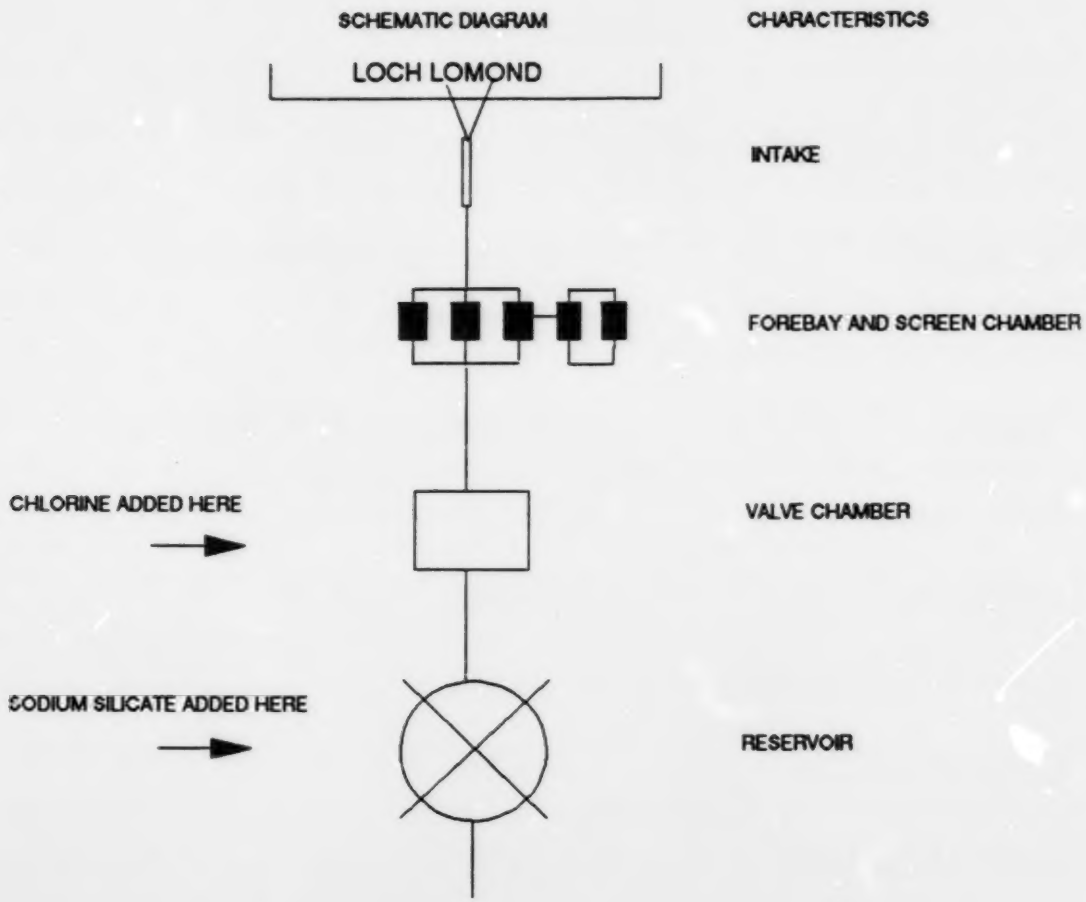

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

THUNDER BAY (LOCH LOMOND) WATER SUPPLY SYSTEM

LOCATION:	FORT WILLIAM INDIAN RESERVE THUNDER BAY, ONTARIO (807-625-2471)
SOURCE:	RAW WATER SOURCE - LOCH LOMOND
RATED CAPACITY:	54.55 (1000 M^3/DAY)
OPERATION:	MUNICIPAL
PLANT SUPERINTENDENT:	D. SHANTZ
MINISTRY REGION:	NORTHWEST
DISTRICT OFFICER:	D. MURRAY

MUNICIPALITY SERVED	POPULATION
THUNDER BAY	113,000

sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours, then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

The Thunder Bay (Loch Lomond) Water Treatment Plant was sampled for the presence of approximately 180 parameters on a monthly basis. The water at four locations in the distribution system was sampled intermittently in 1989. Samples were analyzed for Specific Pesticides and Chlorophenols in November only. Samples of the raw and treated water only were analyzed for Polyaromatic Hydrocarbons and Phenolics. As of August, analysis of the triazine pesticides was dropped from the distribution system. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field Chemistry measurements were recorded on the day of sampling and entered on the DWSP data base as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on

both tables. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under review. When an ODWO is not available, guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS), recently published (ISBN 0-7729-4461-X) by the MOE, catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable values, as defined by established MOE Laboratory analytical reporting protocols. The occasional finding of a trace level of a

contaminant is thus not considered to be significant. They can be useful in trend analysis, or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriology

Positive results for the Bacteriology scan were present twice in the treated water and once in the Site 3 water sample. The positive parameters were Standard Plate Count. Bacteriological results were very limited in 1989. The Thunder Bay laboratory will be performing all bacteriological testing for the Thunder Bay plants since the sample would not arrive at the Toronto laboratories within the allotted time period.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality. The routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the distribution system and the fact that their enumeration is subject to considerable variation. Routine bacteriological monitoring, as

outlined in the ODWOs, is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for Laboratory and Field Chemistry scans were below any applicable health related ODWOs.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of Turbidity is its interference with disinfection in the treatment plant and maintenance of a chlorine residual. The ODWO of 1 Formazin Turbidity Unit (FTU) was exceeded in August with a value of 1.2 FTU. The District Officer was notified.

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for Loch Lomond is consistently negative.

Colour values exceeded the aesthetic ODWO of 5 True Colour Units (TCU) in nine treated water samples; one Site 1 free flow sample, three Site 2 free flow samples, two Site 3 samples and four Site

4 samples. Colour in drinking water may be due to the presence of natural or synthetic organic substances as well as certain metallic ions.

Metals

The results reported for the Metal scan were below any applicable ODWOs.

Elevated levels of Copper, Nickel, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples. This indicates that these metals were leached from the household plumbing as the water stood overnight. The Langelier Index indicates a potential for corrosion and some metals will be leached in standing samples.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that no chloroaromatics were detected.

Chlorophenols

The results of the Chlorophenol scan showed that no Chlorophenols were detected.

Pesticides and PCB

Results of the Pesticides and PCB scan showed that no PCBs were detected and that one pesticide was detected:

Alpha BHC

There are several isomers of BHC (benzene hexachloride). Gamma BHC is the active ingredient of the pesticide Lindane while alpha BHC is the isomer most predominantly found in surface waters of the Great Lakes basin as indicated by results from other water supplies on DWSP.

Alpha BHC was detected at trace levels; in seven raw water samples, seven treated water samples, one Site 1 water, Site 2 water, Site 3 water and Site 4 water.

Specific Pesticides

The results of the Specific Pesticide scan showed that none were detected.

Phenolics

Phenolics were detected in both the raw water, ranging from 1.2 µg/L to 17.6 µg/L, and the treated water, ranging from 1.0 µg/L to 3.2 µg/L. The maximum desirable concentration of phenolic substances in drinking water is 2.0 µg/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolic compounds are

present in the aquatic environment as a result of natural and/or industrial processes.

Polyaromatic Hydrocarbons (PAH)

The results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatile scan showed that five parameters, other than Trihalomethanes (THMs) were detected:

Benzene

Toluene

Styrene

1,1,1-Trichloroethane

Tetrachloroethylene

The detection of benzene, ethylbenzene, toluene and the xylenes at low, trace levels is a laboratory artifact derived from the analytical methodology.

The detected trace levels of Styrene are also considered to be laboratory artifacts resulting from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 µg/L.

1,1,1-Trichloroethane was detected in March in the treated water (0.40 µg/L), the Site 1 water (0.20 µg/L) and the Site 3 water

(0.20 µg/L) and in May in the raw water (0.36 µg/L). The Maximum Concentration Level set by the United States Environmental Protection Agency for 1,1,1,-Trichloroethane in drinking water is 200 µg/L. 1,1,1-Trichloroethane was also detected at trace levels; twice in the raw water and once at both Site 3 and Site 4.

Tetrachloroethylene was detected at trace levels in one treated water sample and one Site 4 water sample.

THMs are known to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Dichlorobromomethane and Total THMs were detected in all treated waters. Chlorodibromomethane was detected at trace levels in two treated water samples. Bromoform was not detected. All Total THM occurrences, ranging from 108 µg/L to 181 µg/L, were below the ODWO of 350 µg/L.

CONCLUSIONS

Effective treatment should be provided to ensure safety and consistency in the quality of all waters. The current Ministry policy (#15-14-01) requires that all surface waters shall use

treatment processes consisting of coagulation-flocculation, filtration (or equivalent) and disinfection. Surface supplies without such treatment are subject to contamination with biological organisms including algae, protozoa and other organisms that can cause taste and odour and other aesthetic problems in the distributed water.

While the parameters measured may not have exceeded drinking water guidelines, the water produced cannot be considered to be satisfactory until a treatment process appropriate to the source of the supply is applied (see ODWOs p.7).

No health related guidelines for organic or inorganic parameters were exceeded during 1988 and 1989.

RECOMMENDATIONS

Two recommendations can be made:

1) Consideration should be given to applying appropriate treatment.

2) The process used for corrosion control should be reviewed.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) SAMPLE DAY CONDITIONS 1989

SAMPLE DAY CONDITIONS			TREATMENT CHEMICAL DOSAGES (MG/L)	
			PRE-CHLORINATION	CORROSION CONTROL
			CHLORINE	SODIUM SILICATE
DATE	RETENTION TIME(HRS)	FLOW (1000M3)		
JAN 10	.7	25.2	1.72	14.29
FEB 14	.2	.	1.71	13.25
MAR 14	.2	.	3.11	14.19
MAY 09	.	.	.	12.93
JUN 13	.	.	3.40	13.37
JUL 10	.	.	3.40	12.88
SEP 12	.	35.0	3.74	14.00
NOV 14	.2	.	3.60	11.21
DEC 11	.5	29.4	3.36	9.50

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 3			SITE 2			SITE 4		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	2	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	FECAL COLIFORM	.	.	.	1	0	0	.	.	.	1	0	0	.	.	.	2	0	0
	STANDRD PLATE CNT MF	.	.	.	2	2	0	.	.	.	1	1	0	.	.	.	2	0	0
	COLIFORM	.	.	.	1	0	0	.	.	.	1	0	0	.	.	.	2	0	0
	TOTAL COLIFORM MF	2	0	0	2	0	0	.	.	.	1	0	0	.	.	.	2	0	0
	T COLIFORM BCKGRD MF	1	1	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN BACTERIOLOGICAL		5	1	0	7	2	0	0	0	0	4	1	0	0	0	0	8	0	0
*TOTAL GROUP BACTERIOLOGICAL		5	1	0	7	2	0	0	0	0	4	1	0	0	0	0	8	0	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	1	0	0	10	10	0	1	1	0	2	2	0	4	0	0	4	3	0
	FLD CHLORINE FREE	1	0	0	10	10	0	1	1	0	2	2	0	3	0	0	8	8	0
	FLD CHLORINE (TOTAL)	1	0	0	10	10	0	1	1	0	2	2	0	4	0	0	8	8	0
	FLD PH	11	11	0	10	10	0	2	2	0	2	2	0	4	4	0	8	8	0
	FLD TEMPERATURE	10	10	0	10	10	0	2	2	0	2	2	0	.	.	.	8	8	0
	FLD TURBIDITY	3	2	0	1	1	0	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN CHEMISTRY (FLD)		27	23	0	51	51	0	7	7	0	10	10	0	15	4	0	36	35	0
CHEMISTRY (LAB)	ALKALINITY	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	CALCIUM	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	CYANIDE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	CHLORIDE	11	2	9	11	10	1	2	2	0	2	2	0	5	5	0	10	10	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
CHEMISTRY (LAB)	COLOUR	11	11	0	11	10	1	2	2	0	2	2	0	5	5	0	10	10	0
	CONDUCTIVITY	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	FLUORIDE	11	0	9	11	0	8	2	0	0	2	0	1	5	0	5	10	0	6
	HARDNESS	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	IONCAL	11	11	0	11	11	0	2	2	0	2	2	0	6	5	0	10	10	0
	LANGELIERS INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	MAGNESIUM	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	SODIUM	11	6	5	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	AMMONIUM TOTAL	11	5	5	11	3	7	2	2	0	2	2	0	5	0	1	10	7	2
	NITRITE	11	3	7	11	2	8	2	2	0	2	1	1	5	0	4	10	7	3
	TOTAL NITRATES	11	8	1	11	9	1	2	2	0	2	2	0	5	5	0	10	9	1
	NITROGEN TOT KJELD	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	PH	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	PHOSPHORUS FIL REACT	11	0	6	11	1	7	.	.	.	.	.	.	.	.	.	.	.	.
	PHOSPHORUS TOTAL	11	0	11	11	1	9	.	.	.	.	.	.	.	.	.	.	.	.
	SULPHATE	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
	TURBIDITY	11	11	0	11	11	0	2	2	0	2	2	0	5	5	0	10	10	0
*TOTAL SCAN CHEMISTRY (LAB)		220	145	53	220	157	42	35	32	0	36	31	2	89	70	10	175	153	12
METALS	SILVER	11	0	2	11	0	5	2	0	1	1	0	1	5	0	1	10	0	8
	ALUMINUM	11	11	0	11	11	0	2	2	0	1	1	0	5	5	0	10	10	0
	ARSENIC	11	0	10	11	0	9	2	0	2	1	0	1	5	0	5	10	0	10
	BARIUM	11	11	0	11	11	0	2	2	0	1	1	0	5	5	0	10	10	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
METALS	BORON	11	1	10	11	0	11	2	0	2	1	0	1	5	0	5	10	1	9
	BERYLLIUM	11	0	6	11	0	7	2	0	2	1	0	1	5	0	0	10	0	4
	CADMIUM	11	0	2	11	0	1	2	0	1	1	0	0	5	0	1	10	0	2
	COBALT	11	0	11	11	0	11	2	0	2	1	0	1	5	0	4	10	0	10
	CHROMIUM	11	6	3	11	3	5	2	1	1	1	1	0	5	0	3	10	1	3
	COPPER	11	11	0	11	10	1	2	2	0	1	1	0	5	5	0	10	10	0
	IRON	11	0	11	11	0	11	2	1	1	1	1	0	5	0	5	10	0	10
	MERCURY	11	4	5	11	4	5	1	1	0	2	2	0	3	1	1	5	0	1
	MANGANESE	11	11	0	11	11	0	2	2	0	1	1	0	5	5	0	10	10	0
	MOLYBDENUM	11	0	11	11	0	11	2	0	2	1	0	1	5	0	5	10	0	10
	NICKEL	11	0	7	11	0	8	2	0	2	1	0	1	5	0	1	10	4	6
	LEAD	11	6	4	11	4	6	2	2	0	1	1	0	5	3	2	10	10	0
	ANTIMONY	11	10	1	11	10	1	2	2	0	1	1	0	5	5	0	10	10	0
	SELENIUM	11	0	1	11	0	4	2	0	1	1	0	1	5	0	0	10	0	4
	STRONTIUM	11	11	0	11	11	0	2	2	0	1	1	0	5	5	0	10	10	0
	TITANIUM	11	9	2	11	11	0	2	2	0	1	1	0	5	5	0	10	10	0
	THALLIUM	11	0	3	11	0	6	2	0	2	1	0	1	5	0	0	10	0	5
	URANIUM	11	0	1	11	0	2	2	0	0	1	0	0	5	0	0	10	0	2
	VANADIUM	11	0	11	11	0	11	2	0	2	1	0	1	5	0	5	10	0	10
	ZINC	11	7	4	11	8	3	2	2	0	1	1	0	5	3	2	10	10	0
*TOTAL SCAN METALS		264	98	105	264	94	118	47	21	21	25	13	10	118	42	40	235	96	94
*TOTAL GROUP INORGANIC & PHYSICAL		511	266	158	535	302	160	89	60	21	71	54	12	222	116	50	446	284	106
CHLOROAROMATICS	HEXACHLOROBUTADIENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
CHLOROAROMATICS	123 TRICHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	1234 T-CHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	1235 T-CHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	124 TRICHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	1245 T-CHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	135 TRICHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	HCB	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	HEXACHLOROETHANE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	OCTACHLOROSTYRENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	PENTACHLOROBENZENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	236 TRICHLOROTOLUENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	245 TRICHLOROTOLUENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	26A TRICHLOROTOLUENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
*TOTAL SCAN CHLOROAROMATICS		154	0	0	154	0	0	14	0	0	28	0	0	42	0	0	70	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	2345 T-CHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	2356 T-CHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	245-TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	246-TRICHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PENTACHLOROPHENOL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN CHLOROPHENOLS		6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
PAH	PHENANTHRENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	ANTHRACENE	10	0	0	10	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	FLUORANTHENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PYRENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(A)ANTHRACENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CHRYSENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DIMETH. BENZ(A)ANTHR	4	0	0	4	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(E) PYRENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(B) FLUORANTHEN	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PERYLENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(K) FLUORANTHEN	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(A) PYRENE	5	0	0	5	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(G,H,I) PERYLEN	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DIBENZO(A,H) ANTHRAC	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	INDENO(1,2,3-C,D) PY	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENZO(B) CHRYSENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CORONENE	11	0	0	11	0	0	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN PAH		173	0	0	173	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	ALPHA BHC	11	0	7	11	0	7	1	0	1	2	0	1	3	0	1	5	0	1
	BETA BHC	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	LINDANE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
PESTICIDES & PCB	ALPHA CHLORDANE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	GAMMA CHLORDANE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	DIELDRIN	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	METHOXYCHLOR	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	ENDOSULFAN I	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	ENDOSULFAN II	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	ENDRIN	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	ENDOSULFAN SULPHATE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	HEPTACHLOR EPOXIDE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	HEPTACHLOR	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	MIREX	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	OXYCHLORDANE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	OPDDT	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	PCB	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	DDD	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	PPDDE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	PPDDT	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	AMETRINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	ATRAZINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	ATRATONE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	CYANAZINE (BLADEX)	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	D-ETHYL ATRAZINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	D-ETHYL SIMAZINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	PROMETONE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	PROPAZINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
PESTICIDES & PCB	PROMETRYNE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	METRIBUZIN (SENCOR)	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	SIMAZINE	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	ALACHLOR (LASSO)	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
	METOLACHLOR	11	0	0	11	0	0	1	0	0	2	0	0	0	0	0	5	0	0
*TOTAL SCAN PESTICIDES & PCB		374	0	7	374	0	7	34	0	1	68	0	1	63	0	1	170	0	1
PHENOLICS	PHENOLICS	10	8	1	11	10	1	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN PHENOLICS		10	8	1	11	10	1	0	0	0	0	0	0	0	0	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	11	0	0	11	0	0	1	0	0	2	0	0	3	0	0	5	0	0
	2,4,5-T	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	2,4-D	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	2,4-DB	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DICAMBA	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	SILVEX	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DIAZINON	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DICHLOROVOS	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CHLORPYRIFOS	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
SPECIFIC PESTICIDES	ETHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	AZINPHOS-METHYL	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	MALATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	MEVINPHOS	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	METHYL PARATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	METHYLTRITHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PARATHION	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PHORATE	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	RELDAN	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	RONNEL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	AMINOCARB	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BENOMYL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BUX	0	0	0	0	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CARBOFURAN	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CICP	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	DIALLATE	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	EPTAM	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	IPC	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	PROPOXUR	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	CARBARYL	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
	BUTYLATE	1	0	0	1	0	0	.	.	.	.	.	.	.	.	.	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		38	0	0	38	0	0	1	0	0	2	0	0	3	0	0	5	0	0
VOLATILES	BENZENE	10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	1

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE	RAW			TREATED			SITE 1			SITE 3			SITE 2			SITE 4		
			TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	TOLUENE		10	0	1	9	0	2	1	0	0	2	0	0	3	0	0	4	0	1
	ETHYLBENZENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	P-XYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	M-XYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	O-XYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	STYRENE		10	0	6	9	0	5	1	0	1	2	0	2	3	0	1	4	0	2
	1,1 DICHLOROETHYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	METHYLENE CHLORIDE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	T1,2DICHLOROETHYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	1,1 DICHLOROETHANE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	CHLOROFORM		10	0	3	9	9	0	1	1	0	2	2	0	3	3	0	4	4	0
	111, TRICHLOROETHANE		10	1	2	9	1	0	1	1	0	2	1	1	3	0	0	4	0	1
	1,2 DICHLOROETHANE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	CARBON TETRACHLORIDE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	1,2 DICHLOROPROPANE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	TRICHLOROETHYLENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	DICHLOROBROMOMETHANE		10	0	2	9	9	0	1	1	0	2	2	0	3	3	0	4	4	0
	112 TRICHLOROETHANE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	CHLORODIBROMOMETHANE		10	0	0	9	0	2	1	0	0	2	0	0	3	0	0	4	0	0
	T-CHLOROETHYLENE		10	0	0	9	0	1	1	0	0	2	0	0	3	0	0	4	0	1
	BROMOFORM		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	1122 T-CHLOROETHANE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	CHLOROBENZENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	1,4 DICHLOROBENZENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	1,3 DICHLOROBENZENE		10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND)

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 3 TOTAL	SITE 3 POSITIVE	SITE 3 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE	SITE 4 TOTAL	SITE 4 POSITIVE	SITE 4 TRACE
VOLATILES	1,2 DICHLOROBENZENE	10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	ETHLYENE DIBROMIDE	10	0	0	9	0	0	1	0	0	2	0	0	3	0	0	4	0	0
	TOTL TRIHALOMETHANES	10	0	1	9	9	0	1	1	0	2	2	0	3	3	0	4	4	0
*TOTAL SCAN VOLATILES		290	1	15	261	28	10	29	4	1	58	7	3	87	9	1	116	12	6
*TOTAL GROUP ORGANIC		1045	9	23	1017	38	18	78	4	2	156	7	4	195	9	2	361	12	7
TOTAL		1561	276	181	1559	342	178	167	64	23	231	62	16	417	125	52	815	296	113

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. Studies of long-term environmental trends and modelling may however, be adversely affected by the exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported with the code "<T". Results qualified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. The average of such data however, is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded

!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

		WATER TREATMENT PLANT		DISTRIBUTION SYSTEM				
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL									
FECAL COLIFORM ( )			**DET'N LIMIT = N/A**		**GUIDELINE = 0 (A1)**				
MAR	.	0	.	.	0	.	.	.	0
JUN	.	.	.	.	.	.	.	.	0
STANDRD PLATE CNT MF ( )			**DET'N LIMIT = 0**		**GUIDELINE = 500/ML (A1)**				
MAR	.	1	.	.	1	.	.	.	0
JUN	.	.	.	.	.	.	.	.	0
JUL	.	24	.	.	.	.	.	.	.
COLIFORM ( )			**DET'N LIMIT = N/A**		**GUIDELINE = 0 (A1)**				
MAR	.	0	.	.	0	.	.	.	0
JUN	.	.	.	.	.	.	.	.	0
TOTAL COLIFORM MF (CT/100ML)			**DET'N LIMIT = 0**		**GUIDELINE = 5/100ML(A1)**				
MAR	BDL	0	.	.	0	.	.	.	0
JUN	.	.	.	.	.	.	.	.	0
JUL	BDL	0	.	.	.	.	.	.	.
T COLIFORM BCKGRD MF (CT/100ML)			**DET'N LIMIT = 0**		**GUIDELINE = N/A**				
JUL	10000 A3C	0	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)									
FLD CHLORINE (COMB) ( )			DET'N LIMIT = N/A		GUIDELINE = N/A				
JAN	.	.200	.	.	.	.	.	.	.
FEB	.	.180	.	.	.	.	.	.	.
MAR	.	.100	.	.300	.300	.	.	.	.200
MAY	.	.100	.	.	.400	.	.	.	.200
JUN	.	.300	.	.	.	.	.	.000	.200
JUL	.	.200	.	.	.	.	.	.	.
AUG	.	.300	.	.	.	.	.	.	.
SEP	.000	.	.	.	.	.000	.000	.	.
OCT	.	.150	.	.	.	.000	.000	.	.
NOV	.	.090	.	.	.	.	.	.	.
DEC	.	.200	.	.	.	.	.	.	.
FLD CHLORINE FREE ( )			DET'N LIMIT = N/A		GUIDELINE = N/A				
JAN	.	1.600	.	.	.	.	.	.	.
FEB	.	1.630	.	.	.	.	.	.100	.900
MAR	.	1.400	.	.700	.700	.	.	.100	.700
MAY	.	1.790	.	.	.700	.	.	.100	.500
JUN	.	1.700	.	.	.	.	.	.100	.700
JUL	.	1.530	.	.	.	.	.	.	.
AUG	.	1.500	.	.	.	.	.	.	.
SEP	.000	.	.	.	.	.000	.	.	.
OCT	.	1.700	.	.	.	.000	.000	.	.
NOV	.	1.600	.	.	.	.	.	.	.
DEC	.	1.200	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
SITE TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FLD CHLORINE (TOTAL) ( )			DET'N LIMIT = N/A		GUIDELINE = N/A				
JAN	.	1.800	.	.	.	.	.	.	.
FEB	.	1.810	.	.	.	.	.	.100	.900
MAR	.	1.500	.	1.000	1.000	.	.	.100	.900
MAY	.	1.890	.	.	1.100	.	.	.100	.700
JUN	.	2.000	.	.	.	.	.	.100	.900
JUL	.	1.730	.	.	.	.	.	.	.
AUG	.	1.800	.	.	.	.	.	.	.
SEP	.000	.	.	.	.	.000	.000	.	.
OCT	.	1.850	.	.	.	.000	.000	.	.
NOV	.	1.690	.	.	.	.	.	.	.
DEC	.	1.400	.	.	.	.	.	.	.
FLD PH (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)				
JAN	6.900	7.900	.	.	.	.	.	.	.
FEB	6.900	8.000	.	.	.	.	.	.	.
MAR	7.100	7.900	7.400	7.500	7.500	.	.	7.200	7.500
MAY	7.000	8.700	.	.	7.400	.	.	7.200	7.500
JUN	7.100	7.900	.	.	.	.	.	7.200	7.500
JUL	7.200	8.500	.	.	.	.	.	7.400	7.600
AUG	6.900	7.700	.	.	.	.	.	.	.
SEP	6.900	.	.	.	.	.	.	.	.
OCT	7.200	7.800	.	.	.	8.300	8.300	.	.
NOV	6.900	7.800	.	.	.	8.400	8.400	.	.
DEC	7.100	8.100	.	.	.	.	.	.	.
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)				

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	2.000	2.000	.	.	.	.	.	.	.
FEB	2.000	2.000	.	.	.	.	.	18.000	6.000
MAR	2.000	2.000	18.000	5.000	5.000	.	.	18.000	9.000
MAY	4.000	4.000	.	.	8.000	.	.	17.000	7.000
JUN	7.000	7.000	.	.	.	.	.	20.000	10.000
JUL	8.900	8.900	.	.	.	.	.	.	.
AUG	10.000	10.000	.	.	.	.	.	.	.
SEP	10.000	.	.	.	.	.	.	.	.
OCT	9.000	9.000	.	.	.	.	.	.	.
NOV	6.000	6.000	.	.	.	.	.	.	.
DEC	.	5.000	.	.	.	.	.	.	.
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)				
JAN	.450	.	.	.	.	.	.	.	.
MAY	.260	.260	.	.	.	.	.	.	.
JUL	.000	.	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE			WATER TREATMENT PLANT		DISTRIBUTION SYSTEM				
TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)									
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)				
JAN	21.200	22.900	.	.	.	.	.	24.100	22.900
FEB	21.200	23.000	.	.	.	.	.	24.500	23.200
MAR	21.000	23.400	24.700	23.500	23.500	.	.	24.400	23.400
MAY	20.900	22.000	.	.	22.600	.	.	23.500	22.200
JUN	20.200	21.700	.	.	.	.	.	23.700	20.000
JUL	21.100	23.200	.	.	.	.	.	.	.
AUG	20.800	22.800	.	.	.	.	.	.	.
SEP	20.800	18.400	.	.	.	ISM	26.800	.	.
OCT	21.000	23.000	.	.	.	28.700	29.100	.	.
NOV	20.900	21.600	.	.	.	28.900	28.400	.	.
DEC	21.600	21.900	.	.	.	.	.	.	.
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100 (F2)				
JAN	6.200	6.000	.	.	.	.	.	6.400	6.200
FEB	6.400	6.400	.	.	.	.	.	7.200	6.400
MAR	6.400	6.600	7.000	6.600	6.600	.	.	7.200	6.800
MAY	5.400	5.600	.	.	5.200	.	.	6.000	5.600
JUN	4.800	4.800	.	.	.	.	.	5.400	5.000
JUL	6.000	6.000	.	.	.	.	.	.	.
AUG	5.000	6.200	.	.	.	.	.	.	.
SEP	6.200	6.200	.	.	.	ISM	10.800	.	.
OCT	6.200	6.200	.	.	.	11.000	11.000	.	.
NOV	6.000	5.600	.	.	.	11.400	11.000	.	.
DEC	9.300	9.000	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250 (A3)				
JAN	.600 <T	3.000	.	.	.	.	.	3.300	3.100
FEB	.600 <T	2.900	.	.	.	.	.	3.200	2.900
MAR	.400 <T	2.400	2.800	2.600	2.600	.	.	3.100	2.600
MAY	.400 <T	2.900	.	.	2.900	.	.	3.100	2.900
JUN	2.900	.200 <T	.	.	.	.	.	2.800	3.100
JUL	.500 <T	3.100	.	.	.	.	.	.	.
AUG	.500 <T	3.000	.	.	.	.	.	.	.
SEP	.600 <T	3.400	.	.	.	ISM	3.700	.	.
OCT	.500 <T	3.500	.	.	.	3.800	3.800	.	.
NOV	.400 <T	3.000	.	.	.	3.300	3.200	.	.
DEC	.400	2.800	.	.	.	.	.	.	.
COLOUR (HZU)			DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)				
JAN	11.500	4.500	.	.	.	.	.	6.000	5.000
FEB	12.500	6.500	.	.	.	.	.	8.000	7.500
MAR	7.500	.500 <T	24.500	8.000	8.000	.	.	8.500	8.000
MAY	12.000	7.000	.	.	7.500	.	.	8.000	8.000
JUN	13.500	7.500	.	.	.	.	.	9.000	8.500
JUL	14.000	8.000	.	.	.	.	.	.	.
AUG	14.500	7.500	.	.	.	.	.	.	.
SEP	14.500	6.500	.	.	.	ISM	8.000	.	.
OCT	13.000	6.000	.	.	.	7.500	7.500	.	.
NOV	12.000	6.500	.	.	.	8.000	8.000	.	.
DEC	12.500	6.500	.	.	.	.	.	.	.
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1		GUIDELINE = 400 (F2)				

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	58	70	.	.	.	.	.	75	70
FEB	58	70	.	.	.	.	.	76	70
MAR	59	71	73	72	72	.	.	77	72
MAY	57	69	.	.	70	.	.	76	69
JUN	56	69	.	.	.	.	.	75	70
JUL	57	69	.	.	.	.	.	.	.
AUG	55	68	.	.	.	.	.	.	.
SEP	56	63	.	.	.	ISM	80	.	.
OCT	57	71	.	.	.	83	84	.	.
NOV	56	68	.	.	.	82	81	.	.
DEC	57	67	.	.	.	.	.	.	.
FLUORIDE (MG/L)			DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)				
JAN	.020 <T	.020 <T	.	.	.	.	.	.020 <T	.020 <T
FEB	.040 <T	.040 <T	.	.	.	.	.	.040 <T	.040 <T
MAR	BDL	BDL	BDL	BDL	BDL	.	.	.020 <T	BDL
MAY	.020 <T	.020 <T	.	.	.020 <T	.	.	BDL	.020 <T
JUN	BDL	BDL	.	.	.	.	.	BDL	BDL
JUL	.020 <T	.020 <T	.	.	.	.	.	.	.
AUG	.040 <T	.020 <T	.	.	.	.	.	.	.
SEP	.020 <T	.020 <T	.	.	.	ISM	.020 <T	.	.
OCT	.020 <T	.020 <T	.	.	.	.020 <T	.020 <T	.	.
NOV	.020 <T	.020 <T	.	.	.	.020 <T	.020 <T	.	.
DEC	.040 <T	BDL	.	.	.	.	.	.	.
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)				
JAN	15.000	25.000	.	.	.	.	.	26.000	25.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

			WATER TREATMENT PLANT		DISTRIBUTION SYSTEM				
	SITE								
	TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
				STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB		27.000	27.000	.	.	.	.	.	29.000	27.000
MAR		27.000	27.000	27.000	27.000	27.000	.	.	29.000	27.000
MAY		24.000	24.000	.	.	22.000	.	.	25.000	25.000
JUN		21.000	21.000	.	.	.	.	.	22.000	21.000
JUL		25.000	25.000	.	.	.	.	.	.	.
AUG		24.000	26.000	.	.	.	.	.	.	.
SEP		26.000	26.000	.	.	.	ISM	34.000	.	.
OCT		26.000	27.000	.	.	.	36.000	36.000	.	.
NOV		26.000	25.000	.	.	.	33.000	33.000	.	.
DEC		33.600	32.900	.	.	.	.	.	.	.
IONCAL (DMNSLESS)				DET'N LIMIT = N/A		GUIDELINE = N/A				
JAN		1.897	.728	.	.	.	.	.	3.989	2.037
FEB		1.410	1.394	.	.	.	.	.	.016	3.364
MAR		.437	1.740	1.402	1.938	1.938	.	.	.396	2.122
MAY		3.364	.632	.	.	4.717	.	.	3.689	2.824
JUN		7.736	2.326	.	.	.	.	.	8.509	3.030
JUL		2.111	2.768	.	.	.	.	.	.	.
AUG		8.516	1.745	.	.	.	.	.	.	.
SEP		3.660	5.622	.	.	.	.000 NAF	1.460	.	.
OCT		3.157	3.941	.	.	.	4.423	4.769	.	.
NOV		2.958	2.575	.	.	.	1.332	2.553	.	.
DEC		17.330	1.747	.	.	.	.	.	.	.
LANGELIERS INDEX (DMNSLESS)				DET'N LIMIT = N/A		GUIDELINE = N/A				
JAN		-1.730	-1.626	.	.	.	.	.	-1.628	-1.592

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
SITE			SITE 1		SITE 3	SITE 2		SITE 4	
TYPE	RAW	TREATED	STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	-1.706	-1.686	.	.	.	.	.	-1.500	-1.582
MAR	-1.660	-1.496	-1.457	-1.484	-1.484	.	.	-1.452	-1.443
MAY	-1.605	-1.533	.	.	-1.574	.	.	-1.487	-1.569
JUN	-1.961	-1.886	.	.	.	.	.	-1.749	-1.844
JUL	-1.606	-1.550	.	.	.	.	.	.	.
AUG	-1.840	-1.753	.	.	.	.	.	.	.
SEP	-1.717	-1.853	.	.	.	.	-1.227	.	.
OCT	-1.633	-1.550	.	.	.	-.970	-.965	.	.
NOV	-1.689	-1.710	.	.	.	-1.051	-1.064	.	.
DEC	-1.445	-1.508	.	.	.	.	.	.	.
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30 (F2)				
JAN	2.400	2.500	.	.	.	.	.	2.400	2.400
FEB	2.600	2.700	.	.	.	.	.	2.600	2.800
MAR	2.600	2.600	2.400	2.500	2.500	.	.	2.600	2.500
MAY	2.600	2.600	.	.	2.300	.	.	2.600	2.500
JUN	2.100	2.100	.	.	.	.	.	2.200	2.000
JUL	2.400	2.400	.	.	.	.	.	.	.
AUG	2.800	2.700	.	.	.	.	.	.	.
SEP	2.600	2.600	.	.	.	ISN	1.600	.	.
OCT	2.600	2.800	.	.	.	1.400	1.400	.	.
NOV	2.500	2.600	.	.	.	1.200	1.300	.	.
DEC	2.500	2.550	.	.	.	.	.	.	.
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200 (C3)				
JAN	1.000	3.600	.	.	.	.	.	3.600	3.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

		WATER TREATMENT PLANT	DISTRIBUTION SYSTEM						
SITE TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.800 <T	3.000	.	.	.	.	.	3.000	3.200
MAR	.600 <T	3.000	3.200	3.400	3.400	.	.	3.200	3.200
MAY	1.000 <T	3.400	.	.	4.000	.	.	3.200	3.200
JUN	3.200	3.400	.	.	.	.	.	3.600	3.800
JUL	1.200	4.000	.	.	.	.	.	.	.
AUG	.800 <T	3.400	.	.	.	.	.	.	.
SEP	1.000	2.000	.	.	.	ISM	2.200	.	.
OCT	1.200	4.000	.	.	.	4.200	4.400	.	.
NOV	1.000 <T	3.400	.	.	.	3.200	3.400	.	.
DEC	.200	.200	.	.	.	.	.	.	.
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)				
JAN	.014	.018	.	.	.	.	.	.250	.018
FEB	.002	BDL	.	.	.	.	.	.256	.004 <T
MAR	.002	.002	.002	.002	.002	.	.	.304	.006
MAY	.002 <T	.006 <T	.	.	.018	.	.	.426	BDL
JUN	.010	.010	.	.	.	.	.	.234	.004 <T
JUL	.012	.004 <T	.	.	.	.	.	.	.
AUG	.008 <T	.008 <T	.	.	.	.	.	.	.
SEP	.002 <T	.002 <T	.	.	.	ISM	BDL	.	.
OCT	.004 <T	.004 <T	.	.	.	BDL	.002 <T	.	.
NOV	BDL	.002 <T	.	.	.	BDL	BDL	.	.
DEC	.002 <T	.006 <T	.	.	.	.	.	.	.
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)				
JAN	.002 <T	.003 <T	.	.	.	.	.	.005	.003 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.004 <T	.004 <T	.	.	.	.	.	.006	.005
MAR	.001	.001	.002	.001	.001	.	.	.001	.001
MAY	.006	.004 <T	.	.	.003 <T	.	.	.006	.002 <T
JUN	.006	.005	.	.	.	.	.	.006	.003 <T
JUL	.003 <T	.002 <T	.	.	.	.	.	.	.
AUG	.002 <T	.002 <T	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	ISM	BDL	.	.
OCT	.002 <T	.001 <T	.	.	.	.002 <T	.002 <T	.	.
NOV	.003 <T	.002 <T	.	.	.	.003 <T	.003 <T	.	.
DEC	.002 <T	.001 <T	.	.	.	.	.	.	.
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)				
JAN	.050 <T	.060 <T	.	.	.	.	.	.330	.060 <T
FEB	.070	.075	.	.	.	.	.	.340	.080
MAR	.060	.080	.075	.075	.075	.	.	.400	.075
MAY	.065	.070	.	.	.100	.	.	.535	.075
JUN	BDL	BDL	.	.	.	.	.	.250	.060
JUL	.035	.050	.	.	.	.	.	.	.
AUG	.030	.030	.	.	.	.	.	.	.
SEP	.035	.030	.	.	.	ISM	.035	.	.
OCT	.035	.035	.	.	.	.035	.030	.	.
NOV	.065	.070	.	.	.	.060	.065	.	.
DEC	BDL	.090	.	.	.	.	.	.	.
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A				
JAN	.250	.240	.	.	.	.	.	.530	.230

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

			WATER TREATMENT PLANT		DISTRIBUTION SYSTEM				
SITE			SITE 1		SITE 3	SITE 2		SITE 4	
TYPE	RAW	TREATED	STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.220	.220	.	.	.	.	.	.500	.220
MAR	.250	.230	.220	.230	.230	.	.	.610	.220
MAY	.360	.260	.	.	.250	.	.	.710	.260
JUN	.230	.210	.	.	.	.	.	.490	.220
JUL	.290	.260	.	.	.	.	.	.	.
AUG	.270	.290	.	.	.	.	.	.	.
SEP	.240	.260	.	.	.	ISM	.250	.	.
OCT	.270	.260	.	.	.	.260	.260	.	.
NOV	.240	.230	.	.	.	.210	.230	.	.
DEC	.260	.250	.	.	.	.	.	.	.
PH (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)				
JAN	7.490	7.580	.	.	.	.	.	7.530	7.600
FEB	7.500	7.490	.	.	.	.	.	7.600	7.590
MAR	7.550	7.660	7.650	7.670	7.670	.	.	7.650	7.700
MAY	7.680	7.720	.	.	7.700	.	.	7.710	7.680
JUN	7.390	7.440	.	.	.	.	.	7.490	7.500
JUL	7.630	7.650	.	.	.	.	.	.	.
AUG	7.480	7.440	.	.	.	.	.	.	.
SEP	7.510	7.430	.	.	.	ISM	7.660	.	.
OCT	7.590	7.640	.	.	.	7.880	7.880	.	.
NOV	7.550	7.550	.	.	.	7.780	7.790	.	.
DEC	7.590	7.540	.	.	.	.	.	.	.
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .0005		GUIDELINE = N/A				
JAN	.000 <T	.001 <T	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.000	.001 <T	.	.	.	.	.	.	.
MAR	.000	.001	.	.	.	.	.	.	.
MAY	BDL	BDL	.	.	.	.	.	.	.
JUN	BDL	BDL	.	.	.	.	.	.	.
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	.000 <T	.002 <T	.	.	.	.	.	.	.
SEP	.000 <T	.001 <T	.	.	.	.	.	.	.
OCT	.001 <T	.000 <T	.	.	.	.	.	.	.
NOV	.001 <T	.001 <T	.	.	.	.	.	.	.
DEC	.000 <T	.000 <T	.	.	.	.	.	.	.
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = .002		GUIDELINE = .40 (F2)				
JAN	.004 <T	.005 <T	.	.	.	.	.	.	.
FEB	.004 <T	.004 <T	.	.	.	.	.	.	.
MAR	.004 <T	.006 <T	.	.	.	.	.	.	.
MAY	.006 <T	.005 <T	.	.	.	.	.	.	.
JUN	.006 <T	.005 <T	.	.	.	.	.	.	.
JUL	.008 <T	.008 <T	.	.	.	.	.	.	.
AUG	.009 <T	.010	.	.	.	.	.	.	.
SEP	.005 <T	.007 <T	.	.	.	.	.	.	.
OCT	.008 <T	.009 <T	.	.	.	.	.	.	.
NOV	.003 <T	.005 <T	.	.	.	.	.	.	.
DEC	.003 <T	BDL	.	.	.	.	.	.	.
SULPHATE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 500. (A3)				
JAN	5.640	5.810	.	.	.	.	.	5.780	5.750

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
TYPE			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	5.500	5.560	.	.	.	.	.	5.650	5.540
MAR	5.840	5.810	5.640	5.830	5.830	.	.	6.390	5.940
MAY	5.320	5.320	.	.	5.400	.	.	5.400	5.320
JUN	5.250	5.220	.	.	.	.	.	5.100	5.070
JUL	4.800	4.710	.	.	.	.	.	.	.
AUG	6.100	6.040	.	.	.	.	.	.	.
SEP	5.360	5.380	.	.	.	ISM	5.400	.	.
OCT	5.840	6.040	.	.	.	6.100	6.010	.	.
NOV	6.290	6.550	.	.	.	5.800	5.800	.	.
DEC	6.490	6.400	.	.	.	.	.	.	.
TURBIDITY (FTU)			DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)				
JAN	.630	.410	.	.	.	.	.	.820	.460
FEB	.640	.940	.	.	.	.	.	.980	.650
MAR	.380	.310	1.190 RRV	.420	.420	.	.	.480	.270
MAY	.880	.790	.	.	.700	.	.	.760	.760
JUN	.830	.900	.	.	.	.	.	.910	.950
JUL	.700	.530	.	.	.	.	.	.	.
AUG	.950	1.200	.	.	.	.	.	.	.
SEP	.400	.360	.	.	.	ISM	.270	.	.
OCT	1.000	.890	.	.	.	.490	.560	.	.
NOV	.620	.550	.	.	.	.480	.440	.	.
DEC	1.520	.800	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
METALS									
SILVER (UG/L)				DET'N LIMIT = .020	GUIDELINE = 50. (A1)				
JAN	.040 <T	BDL	.	.	.	.	.	BDL	BDL
FEB	BDL	BDL	.	.	.	.	.	.100 <T	.030 <T
MAR	BDL	.040 <T	BDL	.030 <T	.030 <T	.	.	.080 <T	.050 <T
MAY	.070 <T	.110 <T	.	.	ISM	.	.	.100 <T	.080 <T
JUN	BDL	.040 <T	.	.	.	.	.	.060 <T	.030 <T
JUL	BDL	.040 <T	.	.	.	.	.	.	.
AUG	BDL	.040 <T	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	ISM	.040 <T	.	.
OCT	BDL	BDL	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
ALUMINUM (UG/L)				DET'N LIMIT = .050	GUIDELINE = 100.(A4)				
JAN	8.236	12.760	.	.	.	.	.	11.600	12.760
FEB	9.976	19.720	.	.	.	.	.	19.720	17.400
MAR	6.844	16.240	11.600	15.080	15.080	.	.	15.080	13.920
MAY	11.600	22.040	.	.	ISM	.	.	22.040	17.400
JUN	13.000	28.000	.	.	.	.	.	32.000	26.000
JUL	13.000	25.000	.	.	.	.	.	.	.
AUG	12.000	28.000	.	.	.	.	.	.	.
SEP	16.000	18.000	.	.	.	ISM	22.000	.	.
OCT	8.900	18.000	.	.	.	15.000	16.000	.	.
NOV	10.000	18.000	.	.	.	15.000	15.000	.	.
DEC	11.000	16.000	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
			SITE 1		SITE 3	SITE 2		SITE 4	
TYPE	RAW	TREATED	STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
ARSENIC (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 50.0 (A1)					
JAN	.250 <T	.350 <T	.	.	.	.	.	.260 <T	.290 <T
FEB	.650 <T	.840 <T	.	.	.	.	.	.670 <T	.460 <T
MAR	.750 <T	.460 <T	.570 <T	.650 <T	.650 <T	.	.	.470 <T	.700 <T
MAY	.260 <T	BDL	.	.	ISM	.	.	.190 <T	.150 <T
JUN	.580 <T	.820 <T	.	.	.	.	.	.500 <T	.480 <T
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	.740 <T	.470 <T	.	.	.	.	.	.	.
SEP	.450 <T	.510 <T	.	.	.	ISM	.490 <T	.	.
OCT	.230 <T	.330 <T	.	.	.	.240 <T	.350 <T	.	.
NOV	.240 <T	.330 <T	.	.	.	.400 <T	.390 <T	.	.
DEC	.400 <T	.410 <T	.	.	.	.	.	.	.
BARIUM (UG/L)				DET'N LIMIT = 0.020 GUIDELINE = 1000. (A1)					
JAN	5.200	5.500	.	.	.	.	.	7.700	5.500
FEB	5.200	5.300	.	.	.	.	.	7.500	5.300
MAR	5.400	5.300	7.100	5.000	5.000	.	.	7.200	5.200
MAY	5.400	5.300	.	.	ISM	.	.	6.900	5.000
JUN	5.500	5.600	.	.	.	.	.	7.300	6.200
JUL	5.700	6.000	.	.	.	.	.	.	.
AUG	5.200	5.100	.	.	.	.	.	.	.
SEP	6.000	5.500	.	.	.	ISM	6.900	.	.
OCT	5.400	5.400	.	.	.	5.000	4.800	.	.
NOV	5.200	5.200	.	.	.	5.200	4.800	.	.
DEC	5.100	5.000	.	.	.	.	.	.	.
BORON (UG/L)				DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)					

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
SITE TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	11.000 <T	13.000 <T	.	.	.	.	.	21.000	9.400 <T
FEB	16.000 <T	14.000 <T	.	.	.	.	.	8.800 <T	6.500 <T
MAR	17.000 <T	12.000 <T	13.000 <T	15.000 <T	15.000 <T	.	.	8.700 <T	8.600 <T
MAY	24.000	17.000 <T	.	.	ISM	.	.	4.800 <T	3.400 <T
JUN	11.000 <T	10.000 <T	.	.	.	.	.	11.000 <T	6.200 <T
JUL	9.400 <T	8.200 <T	.	.	.	.	.	.	.
AUG	12.000 <T	11.000 <T	.	.	.	.	.	.	.
SEP	12.000 <T	7.500 <T	.	.	.	ISM	13.000 <T	.	.
OCT	7.700 <T	8.200 <T	.	.	.	8.100 <T	8.400 <T	.	.
NOV	7.200 <T	7.400 <T	.	.	.	7.400 <T	7.500 <T	.	.
DEC	5.500 <T	5.600 <T	.	.	.	.	.	.	.
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = N/A						
JAN	BDL	.080 <T	.	.	.	.	.	BDL	BDL
FEB	BDL	.030 <T	.	.	.	.	.	.030 <T	.020 <T
MAR	.050 <T	.090 <T	.060 <T	.060 <T	.060 <T	.	.	.110 <T	.080 <T
MAY	BDL	BDL	.	.	ISM	.	.	BDL	BDL
JUN	.070 <T	.050 <T	.	.	.	.	.	BDL	BDL
JUL	.020 <T	.040 <T	.	.	.	.	.	.	.
AUG	.080 <T	.030 <T	.	.	.	.	.	.	.
SEP	.050 <T	.040 <T	.	.	.	ISM	BDL	.	.
OCT	.030 <T	BDL	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
CADMIUM (UG/L)			DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)						
JAN	BDL	BDL	.	.	.	.	.	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	RAW	TREATED	WATER TREATMENT PLANT SITE 1 STANDING	SITE 1 FREE FLOW	SITE 3 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	SITE 2 FREE FLOW	SITE 4 STANDING	SITE 4 FREE FLOW
FEB	.070 <T	BDL	.	.	.	.	.	.060 <T	.120 <T
MAR	BDL	.060 <T	.150 <T	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	ISM	.	.	BDL	BDL
JUN	BDL	BDL	.	.	.	.	.	BDL	BDL
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	.090 <T	BDL	.	.	.	ISM	.070 <T	.	.
OCT	BDL	BDL	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
COBALT (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A						
JAN	.080 <T	.060 <T	.	.	.	.	.	.120 <T	.080 <T
FEB	.170 <T	.150 <T	.	.	.	.	.	.190 <T	.150 <T
MAR	.120 <T	.150 <T	.130 <T	.120 <T	.120 <T	.	.	.170 <T	.180 <T
MAY	.070 <T	.060 <T	.	.	ISM	.	.	.070 <T	.030 <T
JUN	.120 <T	.170 <T	.	.	.	.	.	.160 <T	.150 <T
JUL	.170 <T	.180 <T	.	.	.	.	.	.	.
AUG	.110 <T	.110 <T	.	.	.	.	.	.	.
SEP	.130 <T	.150 <T	.	.	.	ISM	.170 <T	.	.
OCT	.050 <T	.050 <T	.	.	.	.050 <T	.050 <T	.	.
NOV	.110 <T	.050 <T	.	.	.	.240 <T	BDL	.	.
DEC	.130 <T	.090 <T	.	.	.	.	.	.	.
CHROMIUM (UG/L)			DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)						
JAN	.580 <T	1.000 <T	.	.	.	.	.	1.100	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
SITE TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	1.900	1.400	.	.	.	.	.	BDL	.110 <T
MAR	1.500	.870 <T	.960 <T	1.400	1.400	.	.	.310 <T	.480 <T
MAY	1.600	.740 <T	.	.	ISM	.	.	BDL	BDL
JUN	1.200	1.100	.	.	.	.	.	BDL	BDL
JUL	1.100	2.300	.	.	.	.	.	.	.
AUG	1.100	1.000 <T	.	.	.	.	.	.	.
SEP	.590 <T	BDL	.	.	.	ISM	.840 <T	.	.
OCT	.910 <T	.890 <T	.	.	.	.920 <T	.910 <T	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
COPPER (UG/L)			DET'N LIMIT = .100 GUIDELINE = 1000 (A3)						
JAN	1.800	2.300	.	.	.	.	.	370.000	48.000
FEB	2.000	2.500	.	.	.	.	.	460.000	61.000
MAR	2.100	2.400	310.000	30.000	30.000	.	.	380.000	75.000
MAY	15.000	2.100	.	.	ISM	.	.	400.000	64.000
JUN	2.400	2.400	.	.	.	.	.	280.000	36.000
JUL	25.000	3.200	.	.	.	.	.	.	.
AUG	2.500	2.400	.	.	.	.	.	.	.
SEP	2.200	2.900	.	.	.	ISM	25.000	.	.
OCT	2.200	2.200	.	.	.	62.000	7.200	.	.
NOV	1.800	1.900	.	.	.	50.000	4.900	.	.
DEC	13.000	2.200 <T	.	.	.	.	.	.	.
IRON (UG/L)			DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)						
JAN	38.000 <T	39.000 <T	.	.	.	.	.	41.000 <T	49.000 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	RAW	TREATED	WATER TREATMENT PLANT SITE 1 STANDING	SITE 1 FREE FLOW	SITE 3 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	SITE 2 FREE FLOW	SITE 4 STANDING	SITE 4 FREE FLOW
FEB	34.000 <T	34.000 <T	.	.	.	.	.	36.000 <T	39.000 <T
MAR	30.000 <T	31.000 <T	36.000 <T	51.000	51.000	.	.	44.000 <T	43.000 <T
MAY	25.000 <T	22.000 <T	.	.	ISM	.	.	18.000 <T	20.000 <T
JUN	23.000 <T	25.000 <T	.	.	.	.	.	25.000 <T	26.000 <T
JUL	31.000 <T	28.000 <T	.	.	.	.	.	.	.
AUG	21.000 <T	19.000 <T	.	.	.	.	.	.	.
SEP	30.000 <T	27.000 <T	.	.	.	ISM	24.000 <T	.	.
OCT	21.000 <T	22.000 <T	.	.	.	18.000 <T	19.000 <T	.	.
NOV	22.000 <T	23.000 <T	.	.	.	34.000 <T	30.000 <T	.	.
DEC	25.000 <T	20.000 <T	.	.	.	.	.	.	.
MERCURY (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)						
JAN	.020 <T	.030 <T	.	.	.	.	.	.	BDL
FEB	.020 <T	.020 <T	.	.	.	.	.	.	BDL
MAR	.040 <T	.060	.	.060	.060	.	.	.	BDL
MAY	.030 <T	.040 <T	.	.	.060	.	.	.	BDL
JUN	.040 <T	.040 <T	.	.	.	.	.	.	.020 <T
JUL	.110	.090	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	.090	.050 <T	.	.	.	.	.040 <T	.	.
NOV	.060	.130	.	.	.	.	.150	.	.
DEC	.070	.100	.	.	.	.	.	.	.
MANGANESE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)						
JAN	2.900	2.300	.	.	.	.	.	3.400	2.500

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	2.800	2.800	.	.	.	.	.	4.200	2.200
MAR	1.800	2.100	1.500	2.000	2.000	.	.	3.300	2.100
MAY	2.600	3.000	.	.	ISM	.	.	3.100	1.800
JUN	2.400	2.600	.	.	.	.	.	3.100	2.400
JUL	3.500	2.800	.	.	.	.	.	.	.
AUG	2.800	2.900	.	.	.	.	.	.	.
SEP	5.000	3.100	.	.	.	ISM	2.100	.	.
OCT	3.500	3.700	.	.	.	1.600	1.900	.	.
NOV	3.400	3.400	.	.	.	1.700	1.800	.	.
DEC	4.100	3.700	.	.	.	.	.	.	.
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A						
JAN	.110 <T	.180 <T	.	.	.	.	.	.100 <T	.110 <T
FEB	.230 <T	.200 <T	.	.	.	.	.	.270 <T	.230 <T
MAR	.280 <T	.220 <T	.260 <T	.260 <T	.260 <T	.	.	.250 <T	.120 <T
MAY	.140 <T	.320 <T	.	.	ISM	.	.	.120 <T	.180 <T
JUN	.310 <T	.160 <T	.	.	.	.	.	.180 <T	.310 <T
JUL	.150 <T	.200 <T	.	.	.	.	.	.	.
AUG	.180 <T	.200 <T	.	.	.	.	.	.	.
SEP	.160 <T	.200 <T	.	.	.	ISM	.210 <T	.	.
OCT	.110 <T	.110 <T	.	.	.	.090 <T	.080 <T	.	.
NOV	.100 <T	.080 <T	.	.	.	.050 <T	.080 <T	.	.
DEC	.060 <T	.110 <T	.	.	.	.	.	.	.
NICKEL (UG/L)			DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)						
JAN	.370 <T	.450 <T	.	.	.	.	.	4.500	1.000 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.650 <T	.680 <T	.	.	.	.	.	10.000	1.600 <T
MAR	.600 <T	.840 <T	.750 <T	.560 <T	.560 <T	.	.	3.600	1.100 <T
MAY	BDL	BDL	.	.	ISM	.	.	1.600 <T	.490 <T
JUN	BDL	.190 <T	.	.	.	.	.	2.300	.480 <T
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	.810 <T	.800 <T	.	.	.	.	.	.	.
SEP	.570 <T	.730 <T	.	.	.	ISM	.370 <T	.	.
OCT	.360 <T	.320 <T	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	.250 <T	.280 <T	.	.	.	.	.	.	.
LEAD (UG/L)	DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)								
JAN	.110 <T	.110 <T	.	.	.	.	.	3.300	.560
FEB	BDL	.240	.	.	.	.	.	3.500	.790
MAR	.280	.290	9.500	1.000	1.000	.	.	4.100	1.200
MAY	.360	.060 <T	.	.	ISM	.	.	4.500	.910
JUN	.300	.140 <T	.	.	.	.	.	4.000	1.100
JUL	.570	.190 <T	.	.	.	.	.	.	.
AUG	.410	.270	.	.	.	.	.	.	.
SEP	.410	.280	.	.	.	ISM	.420	.	.
OCT	.130 <T	.140 <T	.	.	.	.420	.160 <T	.	.
NOV	.060 <T	.060 <T	.	.	.	1.700	.180 <T	.	.
DEC	.170 <T	BDL	.	.	.	.	.	.	.
ANTIMONY (UG/L)	DET'N LIMIT = .050 GUIDELINE = 146. (D4)								
JAN	.430	.350	.	.	.	.	.	.400	.330

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.530	.550	.	.	.	.	.	.650	.560
MAR	.610	.600	.620	.610	.610	.	.	.670	.620
MAY	.430	.460	.	.	ISM	.	.	.470	.580
JUN	.560	.600	.	.	.	.	.	.710	.590
JUL	.730	.650	.	.	.	.	.	.	.
AUG	.500	.630	.	.	.	.	.	.	.
SEP	.640	.570	.	.	.	ISM	.550	.	.
OCT	.500	.460	.	.	.	.480	.530	.	.
NOV	.450	.280	.	.	.	.600	.360	.	.
DEC	.480 <T	.290 <T	.	.	.	.	.	.	.
SELENIUM (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)						
JAN	.320 <T	.320 <T	.	.	.	.	.	BDL	.690 <T
FEB	BDL	.800 <T	.	.	.	.	.	.370 <T	BDL
MAR	BDL	.920 <T	BDL	1.000 <T	1.000 <T	.	.	BDL	1.200 <T
MAY	BDL	BDL	.	.	ISM	.	.	BDL	BDL
JUN	BDL	1.400 <T	.	.	.	.	.	BDL	2.100 <T
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	ISM	BDL	.	.
OCT	BDL	BDL	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
STRONTIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A						
JAN	15.000	14.000	.	.	.	.	.	15.000	14.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	RAW	TREATED	WATER TREATMENT PLANT SITE 1 STANDING	SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 3 FREE FLOW	SITE 2 STANDING	SITE 2 FREE FLOW	SITE 4 STANDING	SITE 4 FREE FLOW
FEB	15.000	15.000	.	.	.	.	.	17.000	14.000
MAR	15.000	14.000	17.000	15.000	15.000	.	.	17.000	15.000
MAY	15.000	14.000	.	.	ISM	.	.	14.000	13.000
JUN	15.000	14.000	.	.	.	.	.	17.000	15.000
JUL	15.000	15.000	.	.	.	.	.	.	.
AUG	14.000	15.000	.	.	.	.	.	.	.
SEP	14.000	15.000	.	.	.	ISM	23.000	.	.
OCT	14.000	15.000	.	.	.	21.000	21.000	.	.
NOV	13.000	13.000	.	.	.	21.000	19.000	.	.
DEC	14.000	14.000	.	.	.	.	.	.	.
TITANIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A						
JAN	3.500	13.000	.	.	.	.	.	13.000	11.000
FEB	3.000	7.500	.	.	.	.	.	7.600	7.000
MAR	3.100	10.000	9.800	11.000	11.000	.	.	9.800	9.600
MAY	4.700	14.000	.	.	ISM	.	.	14.000	13.000
JUN	6.100	23.000	.	.	.	.	.	22.000	23.000
JUL	5.000	16.000	.	.	.	.	.	.	.
AUG	3.700	12.000	.	.	.	.	.	.	.
SEP	3.300	5.000	.	.	.	ISM	6.800	.	.
OCT	2.600	13.000	.	.	.	12.000	13.000	.	.
NOV	2.000 <T	6.200	.	.	.	6.200	5.700	.	.
DEC	3.400 <T	11.000	.	.	.	.	.	.	.
THALLIUM (UG/L)			DET'N LIMIT = .010 GUIDELINE = 13. (04)						
JAN	.020 <T	BDL	.	.	.	.	.	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.040 <T	.170 <T	.	.	.	.	.	.030 <T	.130 <T
MAR	.050 <T	.030 <T	.020 <T	.020 <T	.020 <T	.	.	.030 <T	.020 <T
MAY	BDL	.050 <T	.	.	ISM	.	.	BDL	.070 <T
JUN	BDL	BDL	.	.	.	.	.	BDL	BDL
JUL	BDL	.040 <T	.	.	.	.	.	.	.
AUG	BDL	.030 <T	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	ISM	BDL	.	.
OCT	BDL	.030 <T	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
URANIUM (UG/L)	DET'N LIMIT = .020 GUIDELINE = 100.(B1)								
JAN	BDL	BDL	.	.	.	.	.	BDL	BDL
FEB	BDL	BDL	.	.	.	.	.	BDL	BDL
MAR	BDL	.060 <T	BDL	BDL	BDL	.	.	BDL	.040 <T
MAY	BDL	BDL	.	.	ISM	.	.	BDL	BDL
JUN	BDL	BDL	.	.	.	.	.	BDL	.030 <T
JUL	BDL	BDL	.	.	.	.	.	.	.
AUG	.030 <T	.080 <T	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	ISM	BDL	.	.
OCT	BDL	BDL	.	.	.	BDL	BDL	.	.
NOV	BDL	BDL	.	.	.	BDL	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
VANADIUM (UG/L)	DET'N LIMIT = .050 GUIDELINE = N/A								
JAN	.240 <T	.250 <T	.	.	.	.	.	.180 <T	.180 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.180 <T	.240 <T	.	.	.	.	.	.220 <T	.210 <T
MAR	.230 <T	.210 <T	.230 <T	.200 <T	.200 <T	.	.	.200 <T	.220 <T
MAY	.180 <T	.210 <T	.	.	ISN	.	.	.200 <T	.160 <T
JUN	.220 <T	.190 <T	.	.	.	.	.	.250 <T	.160 <T
JUL	.250 <T	.270 <T	.	.	.	.	.	.	.
AUG	.230 <T	.240 <T	.	.	.	.	.	.	.
SEP	.190 <T	.170 <T	.	.	.	ISN	.130 <T	.	.
OCT	.180 <T	.190 <T	.	.	.	.260 <T	.270 <T	.	.
NOV	.190 <T	.230 <T	.	.	.	.260 <T	.270 <T	.	.
DEC	.160 <T	.130 <T	.	.	.	.	.	.	.
ZINC (UG/L)			DET'N LIMIT = .001 GUIDELINE = 5000. (A3)						
JAN	.480 <T	.960 <T	.	.	.	.	.	40.000	8.500
FEB	.570 <T	1.100	.	.	.	.	.	26.000	8.100
MAR	1.300	1.700	160.000	9.800	9.800	.	.	57.000	14.000
MAY	2.100	1.300	.	.	ISN	.	.	52.000	8.800
JUN	2.100	2.000	.	.	.	.	.	36.000	7.700
JUL	3.800	2.200	.	.	.	.	.	.	.
AUG	1.300	1.400	.	.	.	.	.	.	.
SEP	1.500	1.400	.	.	.	ISN	3.100	.	.
OCT	.620 <T	.720 <T	.	.	.	1.400	.580 <T	.	.
NOV	.870 <T	1.300	.	.	.	1.500	.840 <T	.	.
DEC	2.800	.840 <T	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE			WATER TREATMENT PLANT		DISTRIBUTION SYSTEM				
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
TYPE			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB									
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700 (G)				
JAN	1.000 <T	1.000 <T	.	.	.	.	.	.	2.000 <T
FEB	2.000 <T	BDL	.	.	.	.	.	.	BDL
MAR	BDL	2.000 <T	.	1.000 <T	1.000 <T	.	.	.	BDL
MAY	BDL	1.000 <T	.	.	BDL	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	.	BDL
JUL	2.000 <T	BDL	.	.	.	.	.	.	.
AUG	4.000 <T	1.000 <T	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	1.000 <T	.	.
OCT	1.000 <T	1.000 <T	.	.	.	.	BDL	.	.
NOV	1.000 <T	1.000 <T	.	.	.	.	BDL	.	.
DEC	3.000 <T	2.000 <T	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
SITE			SITE 1		SITE 3	SITE 2		SITE 4	
TYPE	RAW	TREATED	STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)				
JAN	1.600	2.400	.	.	.	.	.	.	.
FEB	2.000	2.800	.	.	.	.	.	.	.
MAR	1.200	1.600	.	.	.	.	.	.	.
MAY	1.200	1.200	.	.	.	.	.	.	.
JUN	17.600	1.000	.	.	.	.	.	.	.
JUL	.800 <T	1.000	.	.	.	.	.	.	.
AUG	1.600	1.600	.	.	.	.	.	.	.
SEP	INR	3.200	.	.	.	.	.	.	.
OCT	2.000	2.200	.	.	.	.	.	.	.
NOV	1.200	1.400	.	.	.	.	.	.	.
DEC	BDL	.600 <T	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
TYPE	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES									
BENZENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 5.0 (B1)					
FEB	BDL	BDL	.	.	.	.	.	.	BDL
MAR	BDL	BDL	.	BDL	BDL	.	.	.	.100 <T
MAY	BDL	BDL	.	.	BDL	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	.	BDL
JUL	BDL	IU	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	BDL	BDL	.	.	.	.	BDL	.	.
NOV	BDL	BDL	.	.	.	.	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
TOLUENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 24.0 (B4)					
FEB	BDL	BDL	.	.	.	.	.	.	BDL
MAR	BDL	BDL	.	BDL	BDL	.	.	.	.050 <T
MAY	BDL	BDL	.	.	BDL	.	.	.	BDL
JUN	.100 <T	.100 <T	.	.	.	.	.	.	BDL
JUL	BDL	IU	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	BDL	BDL	.	.	.	.	BDL	.	.
NOV	BDL	BDL	.	.	.	.	BDL	.	.
DEC	BDL	.100 <T	.	.	.	.	.	.	.
STYRENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)					
FEB	BDL	BDL	.	.	.	.	.	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
MAR	BDL	BDL	.	.050 <T	.050 <T	.	.	.	BDL
MAY	.150 <T	.050 <T	.	.	.100 <T	.	.	.	.100 <T
JUN	.150 <T	.250 <T	.	.	.	.	.	.	.100 <T
JUL	.350 <T	IU	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	.200 <T	BDL	.	.	.	.	.100 <T	.	.
OCT	.250 <T	.100 <T	.	.	.	.	BDL	.	.
NOV	.250 <T	.100 <T	.	.	.	.	BDL	.	.
DEC	BDL	.100 <T	.	.	.	.	.	.	.
CHLOROFORM (UG/L)			DET'N LIMIT = .100 GUIDELINE = 350 (A1+)						
FEB	BDL	131.000	.	.	.	.	.	.	105.000
MAR	BDL	131.900	.	121.200	121.200	.	.	.	104.500
MAY	BDL	140.000	.	.	130.000	.	.	.	110.000
JUN	.400 <T	135.000	.	.	.	.	.	.	135.000
JUL	.400 <T	IU	.	.	.	.	.	.	.
AUG	BDL	122.700	.	.	.	.	.	.	.
SEP	BDL	150.000	.	.	.	.	142.000	.	.
OCT	.200 <T	176.400	.	.	.	.	155.700	.	.
NOV	BDL	150.600	.	.	.	.	149.300	.	.
DEC	BDL	135.000	.	.	.	.	.	.	.
111, TRICHLOROETHANE (UG/L)			DET'N LIMIT = .020 GUIDELINE = 200 (D1)						
FEB	BDL	BDL	.	.	.	.	.	.	BDL
MAR	.160 <T	.400	.	.200	.200	.	.	.	BDL
MAY	.360	BDL	.	.	.020 <T	.	.	.	.100 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	.020 <T	BDL	.	.	.	.	.	.	BDL
JUL	BDL	IU	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	BDL	BDL	.	.	.	.	BDL	.	.
NOV	BDL	BDL	.	.	.	.	BDL	.	.
DEC	BDL	BDL	.	.	.	.	.	.	.
DICHLOROBROMOMETHANE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 350 (A1+)						
FEB	BDL	4.500	.	.	.	.	.	.	3.700
MAR	BDL	4.700	.	3.900	3.900	.	.	.	3.400
MAY	BDL	4.500	.	.	4.100	.	.	.	3.550
JUN	BDL	4.300	.	.	.	.	.	.	4.000
JUL	.100 <T	IU	.	.	.	.	.	.	.
AUG	BDL	3.800	.	.	.	.	.	.	.
SEP	BDL	4.500	.	.	.	.	3.950	.	.
OCT	.100 <T	4.900	.	.	.	.	4.300	.	.
NOV	BDL	4.700	.	.	.	.	4.300	.	.
DEC	BDL	4.600	.	.	.	.	.	.	.
CHLORODIBROMOMETHANE (UG/L)			DET'N LIMIT = .100 GUIDELINE = 350 (A1+)						
FEB	BDL	BDL	.	.	.	.	.	.	BDL
MAR	BDL	BDL	.	BDL	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	BDL	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	.	BDL
JUL	BDL	IU	.	.	.	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM						
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4	
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	BDL	BDL	.	.	.	.	BDL	.	.
NOV	BDL	.100 <T	.	.	.	.	BDL	.	.
DEC	BDL	.100 <T	.	.	.	.	.	.	.
T-CHLOROETHYLENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 10.0 (C2)						
FEB	BDL	BDL	.	.	.	.	.	.	BDL
MAR	BDL	BDL	.	BDL	BDL	.	.	.	BDL
MAY	BDL	BDL	.	.	BDL	.	.	.	BDL
JUN	BDL	BDL	.	.	.	.	.	.	.100 <T
JUL	BDL	IU	.	.	.	.	.	.	.
AUG	BDL	BDL	.	.	.	.	.	.	.
SEP	BDL	BDL	.	.	.	.	BDL	.	.
OCT	BDL	BDL	.	.	.	.	BDL	.	.
NOV	BDL	BDL	.	.	.	.	BDL	.	.
DEC	BDL	.050 <T	.	.	.	.	.	.	.
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = .500 GUIDELINE = 350 (A1)						
FEB	BDL	135.500	.	.	.	.	.	.	108.700
MAR	BDL	136.600	.	125.100	125.100	.	.	.	107.900
MAY	BDL	144.500	.	.	134.100	.	.	.	113.550
JUN	BDL	139.300	.	.	.	.	.	.	139.000
JUL	.500 <T	IU	.	.	.	.	.	.	.
AUG	BDL	126.500	.	.	.	.	.	.	.
SEP	BDL	154.500	.	.	.	.	145.950	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM THUNDER BAY (LOCH LOMOND WTP) 1989

SITE TYPE		WATER TREATMENT PLANT			DISTRIBUTION SYSTEM					
	RAW	TREATED	SITE 1		SITE 3	SITE 2		SITE 4		
			STANDING	FREE FLOW	FREE FLOW	STANDING	FREE FLOW	STANDING	FREE FLOW	
OCT	BDL	181.300	.	.	.	.	160.000	.	.	
NOV	BDL	155.400	.	.	.	.	153.600	.	.	
DEC	BDL	139.700	.	.	.	.	.	.	.	

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	°C	N/A	<15 °C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (F3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000.	(B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	50000.	(B1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PHORATE (THIMET)	NG/L	20.	2000. (B3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENONYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	90000. (B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	90000. (B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05 G)
METHYLENE CHLORIDE	UG/L	.500	50. (B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70. (D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0 (D5)
TRICHLOROETHYLENE	UG/L	.100	50. (B1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	60. (D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0 (B4)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0 (B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	140. (D5)